

Name: \_\_\_\_\_

Date: \_\_\_\_\_

PC: Sketching Transformations

1. Graph each function as a transformation of the basic function  $y = |x|$ . State the domain and range of each.
  - (a)  $y = -|x|$
  - (b)  $y = |3 - x|$
  - (c)  $y = 3 - |x|$
  - (d)  $y = |x + 2| - 1$
2. Graph each function as a transformation of the basic function  $y = x^2$ . State the domain and range of each.
  - (a)  $y = x^2 - 2$
  - (b)  $y = (x - 2)^2$
  - (c)  $y = (x + 2)^2$
  - (d)  $y = (-x)^2$
  - (e)  $y = -x^2$
  - (f)  $y = -(x + 1)^2$
  - (g)  $y = (x - 1)^2 + 3$
  - (h)  $y = 2 - (x - 4)^2$
  - (i)  $y = x^2 + 6x + 9$
  - (j)  $y = x^2 + 4x$
  - (k)  $y = x^2 - 8x + 15$
  - (l)  $y = x^2 - x - 6$
  - (m)  $y = x^2 + 6x + 10$
  - (n)  $y = x^2 + 14x + 40$
  - (o)  $y = 2x^2 + 4x + 5$
3. Graph each function as a transformation of the basic function  $y = \sqrt{x}$ . State the domain and range of each.
  - (a)  $y = \sqrt{x} + 1$
  - (b)  $y = \sqrt{x - 1} + 2$
  - (c)  $y = \sqrt{x + 2} - 3$
  - (d)  $y = -\sqrt{x + 3} - 1$
4. Graph each function as a transformation of the basic function  $y = x^3$ . State the domain and range of each.
  - (a)  $y = -x^3$
  - (b)  $y = x^3 + 3$
  - (c)  $y = (x - 5)^3$
  - (d)  $y = (-x)^3$
5. Graph each function as a transformation of the basic function  $y = x^4$ . State the domain and range of each.
  - (a)  $y = x^4 + 1$
  - (b)  $y = -x^4 - 1$
  - (c)  $y = (x - 4)^4$
  - (d)  $y = (x - 1)^4 + 2$